

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of: Smits

Serial No.: 10/579,266

Confirmation No.: 1309

Filed: March 5, 2007

For: Polypropylene Processing with
Reduced Cycle Time in Injection-
Stretch-Blow Molding

§ Atty. Dkt. No.: F-889

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§ Group Art Unit: 1791

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§ Cust. No.: 25264

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§ Examiner: Rogers

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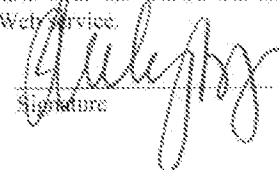
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Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Honorable Commissioner:

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APPEAL BRIEF

Appellants submit this Appeal Brief to the Board of Patent Appeals and Interferences on appeal from the decision of the Examiner of Group Art Unit 1791 dated February 3, 2010, finally rejecting claims 11-19 and 22.

Real Party in Interest

The present application has been assigned to TOTAL Petrochemicals Research Feluy, Zone Industrielle C, Seneffe, Belgium B7181.

Related Appeals and Interferences

Appellants assert that no other appeals, interferences or judicial proceedings are known to the Appellants, the Appellants' legal representative or Assignee that will

directly affect, be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1-10 were originally presented in the application. Claims 1-10 were cancelled and claims 11-21 were added in a Preliminary Amendment. Claims 20-21 were cancelled and claim 21 was added in Response to the Office Action dated May 13, 2009. Accordingly, claims 11-19 and 22 are pending in the application and stand rejected under 35 U.S.C. §103(a). The rejection of the pending claims is appealed. The pending claims are shown in the attached Appendix A.

Status of Amendments

No amendments have been made to the pending claims in Response to the final Office Action.

Summary of Claimed Subject Matter

Independent claim 11 recites a method for the production of a hollow article comprising: providing an isotactic propylene polymer having a melt flow index MFI within the range of 2-10 grams per 10 minutes produced by the polymerization of propylene in the presence of a metallocene catalyst system having C1 or C2 symmetry; subjecting said isotactic propylene polymer to an injection-stretch-blow molding operation to mold said polymer into a hollow article having an exterior wall formed of said polymer; and recovering said article from said injection-stretch-blow molding operation, wherein the article is produced by the operation of said injection-stretch-blow molding operation with a cycle time which is shorter than the cycle time achieved by the injection-stretch-blow molding of a corresponding propylene polymer produced by the polymerization of propylene in the presence of Ziegler Natta catalyst and the article produced by the injection-stretch-blow molding operation has a rigidity which is greater than the rigidity of a corresponding propylene polymer produced by the polymerization of propylene in the presence of a Ziegler Natta catalyst. *See*, Specification, at least page 2, lines 24-26, page 3, line 16, page 5, lines 5-23 and page 6, lines 5-6 and 11-12.

Grounds of Rejection to be Reviewed on Appeal

1. The rejection of claims 11-19 under 35 U.S.C. §103(a) as being unpatentable over JP 2002-275330 (*Isao*) in view of U.S. Pat. No. 6,583,253 (*Fischer*) and WO 00/50476 (*Demain*).
2. The rejection of claim 22 under 35 U.S.C. §103(a) as being unpatentable over *Isao* in view of U.S. Pat. No. 4,308,086 (*Valyl*) and U.S. Pat. No. 4,079,104 (*Dickson*).

Arguments

I. THE EXAMINER ERRED IN REJECTING CLAIMS 11-19 UNDER 35 U.S.C. §103(a) AS BEING UNPATENTABLE OVER *ISAO* IN VIEW OF *FISCHER* AND *DEMAIN*.

The Examiner acknowledges that *Isao* does not disclose creating an isotactic polymer having the claimed melt flow. See, Office Action dated February 3, 2010 at page 2, last paragraph. However, the Examiner asserts that in multiple Examples, “isotactic polymers are produced with melt flow indexes outside of the range required by Appellant” and that “because *Isao* discloses creating polymers which are in the required MFI range...one of ordinary skill in the art would have found it obvious to create a polymer that is isotactic and also within the required melt flow index range”. See, *Id.* at page 3, first paragraph. Appellants respectfully submit that there is no support in the cited art for such a position. In fact, the teaching in *Isao* that the claimed melt flow rate can be found in random copolymers, but no teaching of isotactic polymers having the claimed melt flow index exists in *Isao*, could in fact lead those in the art away from the present claimed features.

The Examiner further states that it is the Examiner’s “position that because the polymer is made by the process steps required by Appellant”, it has the same physical properties. See, *Id.* at page 3, second paragraph. Appellants respectfully submit that, as discussed above, the polymer taught by *Isao* does not have the same physical properties as claimed.

Furthermore, the Examiner asserts that metallocene catalysts are utilized for lowering melting temperature, which “reduces the cycle times in processes which require heating of the polymer to a working temperature” and therefore it would have been obvious to utilize such “for the benefit of reducing the cycle time of the thermoforming process”. *See, Id.* page 3, at last paragraph. Appellants respectfully submit that the Office Action provides no support for the logic that a reduced melting temperature directly leads to reduced cycle times. As demonstrated by the instant Specification, a lower melting temperature of a polymer does not necessarily lead to a lower perform stretching temperature. Cycle time does not only depend upon heating, but also cooling and the point in time in which the stretched article can be ejected from the mold without deformation. For example, syndiotactic polypropylene has a low melting temperature, but a slow crystallization rate, resulting in not a lower cycle time, but a longer cycle time. Accordingly, the mere fact that isotactic polypropylene formed from polypropylene may have a lower melting point than a reference Ziegler-Natta formed polypropylene would not lead one skilled in the art to believe that such would necessarily have a shorter cycle time. The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. *In re Gordon*, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). Appellants respectfully submit that such motivation is not present in the art of record.

In addition, the Examiner argues that “Demain discloses that it is well known in the art to utilize metallocene catalysts in order to impart polypropylene with greater rigidity than would be achieved with a Ziegler-Natta catalyst” and refers to page 4, line 9. *See, Id.* at page 4, first paragraph. Appellants respectfully disagree and submit that such reference (and that of the Examples) demonstrates that polymers produced in *Demain* have a rigidity/flexibility between those for Z-N homopolymers and Z-N random copolymers.

Where the prior art has not recognized a feature of the pending claims, no expectation would exist that utilization of such catalyst would successfully yield the desired improvement. *See, In re Antonie*, 559 F.2d at 619, 195 U.S.P.Q. at 8 (stating two exceptions to a result effective variable’s prima facie obviousness; 1. unexpectedly good results and 2. the art did not recognize that the parameter optimized was a result-effective

variable). Appellants respectfully submit that the cited references do not recognize the claimed features.

For the reasons set forth herein, Appellants respectfully submit that it would not have been obvious to one skilled in the art to have modified the referenced teachings to render the claimed subject matter obvious. Therefore, reversal of the rejection is respectfully requested.

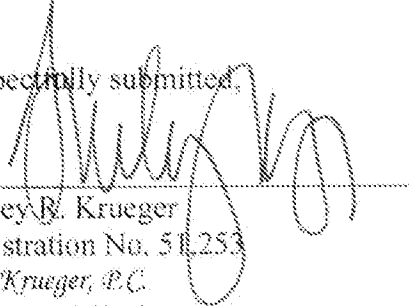
II. THE EXAMINER ERRED IN REJECTING CLAIM 22 UNDER 35 U.S.C. §103(a) AS BEING UNPATENTABLE OVER *ISAO* IN VIEW OF *VALVI* AND *DICKSON*.

The prior art made of record is noted. However, it is believed that the secondary references do not supply the features missing from *Isao*. Appellants distinguished *Isao* from the pending claims in the above discussion and feel that repeating such arguments is unnecessary. Based on such previously presented arguments, Appellants respectfully request reversal of the rejection.

Conclusion

In conclusion, the references of record, either alone or in combination, do not teach, show or suggest the features recited in the pending claims. Thus, Appellants respectfully request reversal of the rejections of claims 1-19 and 22.

Respectfully submitted,



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Appendix A

Pending Claims

11. A method for the production of a hollow article comprising:

(a) providing an isotactic propylene polymer having a melt flow index MFI within the range of 2-10 grams per 10 minutes produced by the polymerization of propylene in the presence of a metallocene catalyst system having C1 or C2 symmetry;

(b) subjecting said isotactic propylene polymer to an injection-stretch-blow molding operation to mold said polymer into a hollow article having an exterior wall formed of said polymer; and

(c) recovering said article from said injection-stretch-blow molding operation, wherein the article is produced by the operation of said injection-stretch-blow molding operation with a cycle time which is shorter than the cycle time achieved by the injection-stretch-blow molding of a corresponding propylene polymer produced by the polymerization of propylene in the presence of Ziegler Natta catalyst and the article produced by the injection-stretch-blow molding operation has a rigidity which is greater than the rigidity of a corresponding propylene polymer produced by the polymerization of propylene in the presence of a Ziegler Natta catalyst.

12. The method of claim 11 wherein said isotactic propylene polymer is produced by polymerization of propylene in the presence of a metallocene catalyst system comprising a metallocene component of the formula:



wherein: (CpR'_k) is a cyclopentadienyl or substituted cyclopentadienyl, each R' is the same or different and is hydrogen or a hydrocarbyl radical comprising an alkyl, alkenyl, aryl, alkylaryl, or arylalkyl radical containing from 1 to 20 carbon atoms or two carbon atoms are joined together to form a C₄-C₆ ring and k is from 0-4; (C^{*}pR'''_l) is a substituted or unsubstituted fluorenyl, each R''' is the same or different and is hydrogen or a hydrocarbyl radical comprising an alkyl, alkenyl, aryl, alkylaryl, or arylalkyl radical containing from 1 to 20 carbon atoms and l is from 0-8; the substituents R' and R''' rings 20 are selected to impart C1 or C2 symmetry to the compound; R'' is a structural bridge between the cyclopentadienyl and the fluorenyl groups rings to impart stereorigidity and

is a C_1 - C_4 alkylene radical, a dialkyl germanium or silicon or siloxane radical, or an alkyl phosphine or amine radical; Q is a hydrocarbyl radical comprising aryl, alkyl, alkenyl, alkylaryl, or aryl alkyl radical having from 1-20 carbon atoms, a hydrocarboxy radical having from 1-20 carbon atoms or halogen and can be the same or different from each other; and M is a transition metal from Group IVb of the Periodic Table.

13. The method of claim 11 wherein said isotactic propylene polymer is an isotactic propylene homopolymer or an isotactic copolymer of propylene and ethylene having an ethylene content of 10 weight percent or less.

14. The method of claim 13 wherein said isotactic propylene polymer is a copolymer of propylene and ethylene.

15. The method of claim 14 wherein said copolymer has an ethylene content of 4 weight percent or less.

16. The method of claim 12 wherein the transition metal M is selected from a group consisting of zirconium, titanium, and hafnium.

17. The method of claim 16 wherein $C_pR'_k$ is a substituted cyclopentadienyl group and $C_pR''_k$ is an unsubstituted fluorenyl group.

18. The method of claim 17 wherein $C_pR'_k$ is a 3,5 disubstituted cyclopentadienyl group.

19. The method of claim 18 wherein said metallocene catalyst component is isopropylidene-(3-tert-butyl-5-methyl-cyclopentadienyl)(fluorenyl) zirconium dichloride.

22. The method of claim 11 wherein said injection-stretch-blow molding operation is carried out in a multi phase process comprising;

(a) providing a preform of said propylene polymer by injection molding of said propylene polymer in a multi cavity mold and thereafter cooling the preform to room temperature;

(b) transporting said preform to a blow molding machine and reheating the preform in said blow molding machine by reflective radiant heat;

Appendix B
Evidence

Not Applicable

Appendix C
Related Proceedings

Not Applicable